

10-1971

L.A. General Data

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TWENTY-NINTH ANNUAL REPORT
PART FOUR
LEWISTON-AUBURN GENERAL DATA
1971

Introduction.

River odor and foam conditions were, at times very objectionable. Hydrogen sulfide was present and occasionally at high intensities due to low river flows, abnormally high water temperatures and, occasionally excessively large upstream discharge of organic wastes.

Daily Reports.

Daily Reports numbered one to ninety-one contain a record of:

- a. River odor, type and intensity
- b. Air Temperature
- c. General Weather conditions
- d. Foam areas
- e. Wind direction
- f. Conditions at Gulf Island and Deer Rips Dams
(Frequent but not daily)

These reports were mailed to Messrs Morse, Cooper and Stevens.

River Odor, Types etc.

During June and early July pig-pen odor was dominant in the Pool from Mile Two Northward. Hydrogen sulfide was detectable on June 25 and soon became the dominant odor until early September. Objectionable river odor was reported in the downtown area on twenty-four days during the period of observations. Due to low river flow, spilling over the Lewiston Falls (Great Falls) was seldom observed and this reduced the frequency and intensity of odor liberation in that area. Hydrogen sulfide was present on at least nine days and on

five occasions was very noticeable in the downtown business area. Kraft-H₂S odor was frequently reported as being "disgusting and persistent", in the Northwood shopping area, the Tall Pines residential complex and the Auburndale shopping area. The cement walls at Gulf Island Dam were blackend by hydrogen sulfide early in June. The odor was detected in mid-June as a very slight trace, however, on June twenty-three the intensity was rated #3. The odor was present, in varying concentrations, until the middle of September. Fortunately the wind was southerly on several of the high odor intensity days.

June twenty-eight, the Auburn Police Department notified the writer that several Auburn residents had registered complaints about the "strong objectionable river odor" present that morning. People wanted to know,

1. Why the intense river odor
2. What was being done to eliminate it and
3. Prevent its return.

Investigation revealed that the odor came from very large areas of floating sludge and from Deer Rips Dam area, very probably the odor was pig-pen, hydrogen sulfide-Kraft.

The worst odor situation, in the Lewiston-Auburn area, occurred during the period, July two to July thirteen. The canal was empty, the flow of the river was passing over the Lewiston "Great Falls", air and water temperatures were high and dissolved oxygen conspicuous by its absence. The odor was chiefly hydrogen sulfide-Kraft. Public complaints were numerous (over twenty on one day) and the Lewiston Evening Journal registered a strong editorial protest.

Air Temperature.

Mean hourly temperatures were above the eighty-seven year averages, May through September. Air temperatures during June, July and August were the highest in recent years; June and September means were 2.50 and 3.14°F respectively above the long range averages.

Table #1

Mean Hourly Temperatures (°F)
(Lewiston)

Year	May	June	July	August	September
1971	53.66	65.81	69.64	68.40	62.40
1970	55.94	64.64	70.62	69.56	59.58
1969	53.47	64.23	67.44	69.50	59.46
1968	53.01	60.60	70.39	65.76	61.31
1967		65.37	69.19	68.23	60.19
1966		64.43	69.01	67.07	56.88
87 year average	53.62	63.31	68.90	66.76	59.26
Deviation from average	±0.04	±2.50	±0.74	±1.64	±3.14

Water Temperatures.

Water temperatures at Gulf Island Dam were above the twenty-nine year average during June, July, August and September, but they were slightly below the average for May. This season's highest water temperature 25.0°C (G.I.D.) was recorded on July nine; the 1970 and 1969 maxima were 26.3°C and 24.5°C respectively.

Precipitation.

In the Lewiston-Auburn area the average monthly precipitation was higher than the ninety-seven year average, May, July and August. June and September precipitation were lower than the long term average. Loss of water due to evaporation appears to have been extensive; five days

in August (16,17,18,19,23) the flow at Gulf Island Dam was less than that passing Berlin.

Table #2

Water Temperatures (°C)
Gulf Island Dam

Year	May*	June	July	August	September
1971	11.5	20.7	24.2	23.6	20.7
1970	11.4	21.1	23.1	24.7	19.1
1969	9.0	19.4	22.5	22.4	20.2
1968	12.6	18.0	23.5	22.4	20.0
1967	8.9	19.7	23.4	23.8	20.4
1966	10.9	20.4	24.1	23.0	20.2
29 year average	12.1	19.8	23.5	23.0	19.5
Deviation	-0.6	±0.9	±0.7	±0.6	±1.2

*Thursday's only

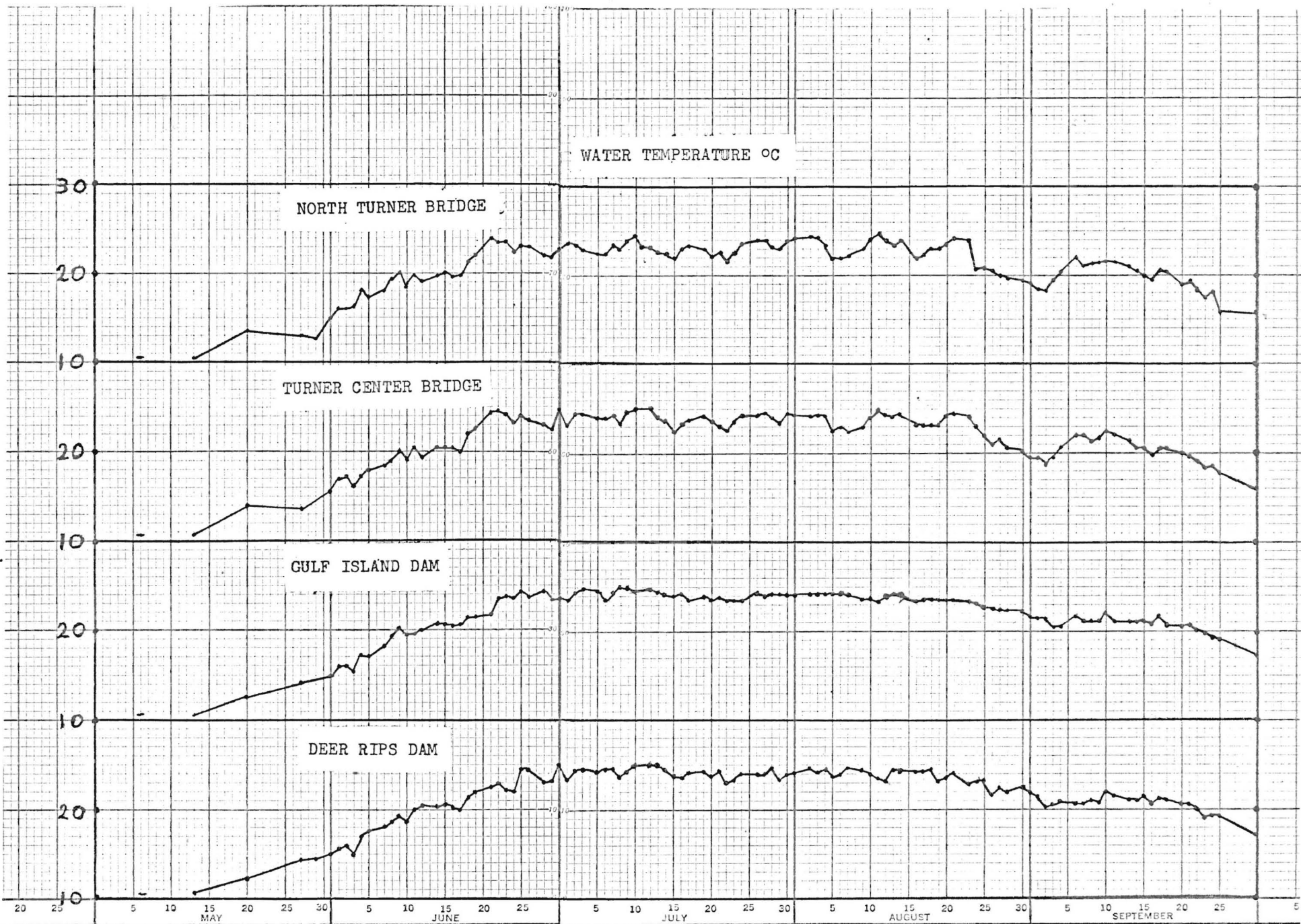
Table #3

Monthly Precipitation (inches)
(Lewiston)

Year	May	June	July	August	September
1971	3.84	2.80	4.58	3.59	3.37
1970	2.87	2.36	3.04	2.39	3.17
1969	2.47	4.23	3.11	3.76	4.50
1968	4.02	4.20	1.94	2.02	2.29
1967	2.94	4.22	3.78	2.23	3.09
1966	3.82	5.57	2.09	3.72	3.94
1965		2.15	1.39	2.30	1.91
97 year average	3.35	3.35	3.44	3.08	3.47
Deviation from average	±0.49	-0.55	±1.14	±0.51	-0.10

River Flows.

River flows were much lower than the thirty-five year averages, July through September and averaged 414 c.f.s. per day below this long range



1971

YEAR OF 19

daily average. During August, the flow at Gulf Island was recorded below 1840 on eight (24 hour) days; the lowest flow was reported August 17 as 1740 cfs.

Table #4

Average Daily Flows (cfs)
(Gulf Island Dam)

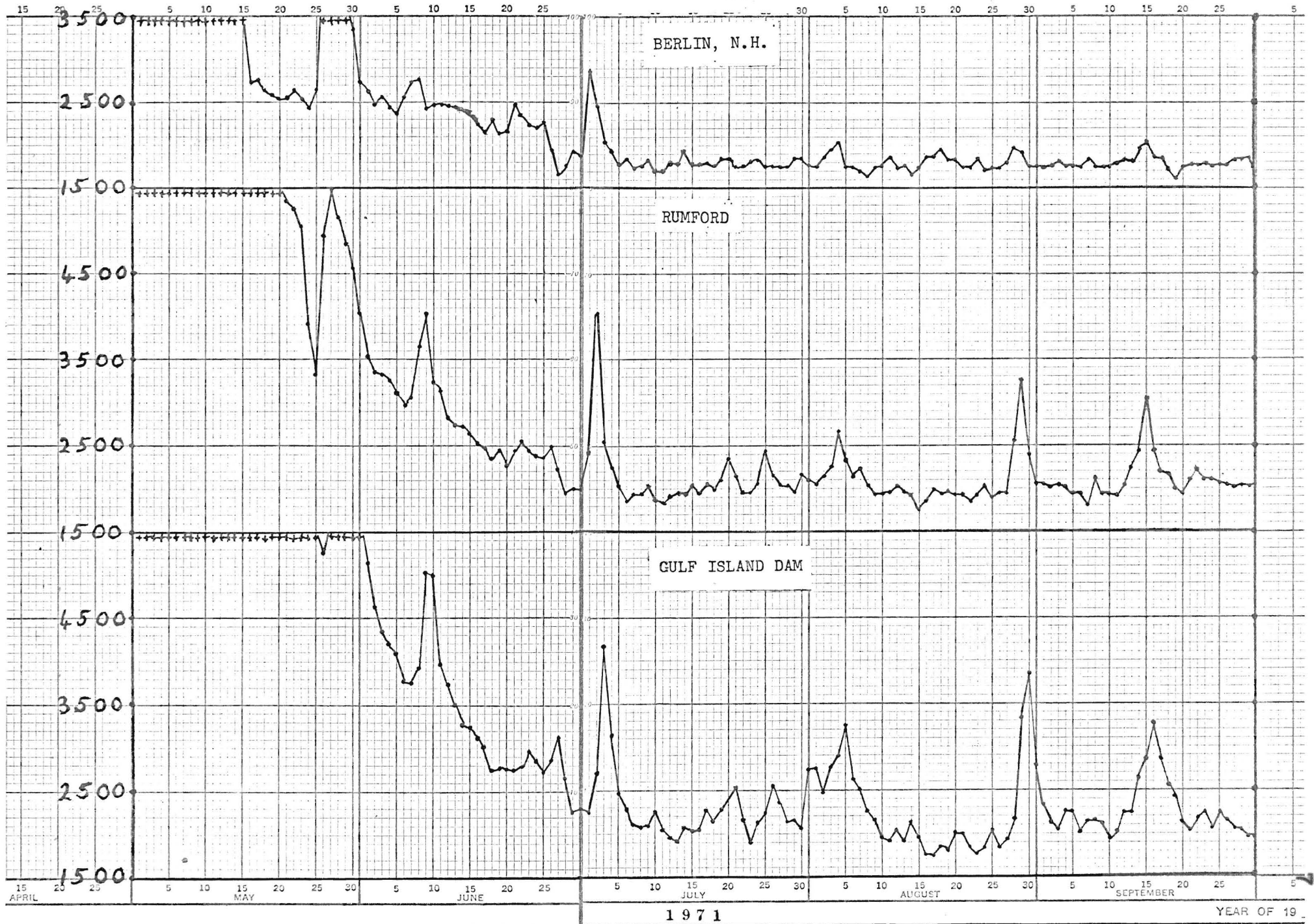
Year	May	June	July	August	Sept.	J.A.S. average
1971	13308	3449	2310	2264	2250	2275
1970	11755	3378	2392	2034	2110	2179
1969	19297	5974	4102	4957	3065	4041
1968	5302	6527	4111	2360	2221	2897
1967	9684	4590	2725	2525	2377	2542
1966	8025	4664	2725	2146	2228	2366
1965	4000	2552	1832	1747	1990	1856
1938-1971 35 year ave.	10223	4737	2871	2507	2690	2689
Deviation from aver.	-3085	-1288	-561	-243	-440	-414

The 1965 Report contains a tabulation of the average monthly river flows for the period 1927 to 1964 inclusive. This (1971) report extends the covered period to 1970. Union Water Power Company generously allowed us to copy their data.

River Surface
Conditions.

Foam covered larger areas and was more persistent than in 1970. The foam had a marked tendency to form relatively thick layers of a dirty brown color, along the Auburn shore, also upstream from the aerators at Gulf Island Dam and at the wall of the dam on each side of the intake areas. Numerous complaints about foam conditions were received.

ANDROSCOGGIN RIVER
FLOW c.f.s.



During August small quantities of floating vegetation (water grasses etc.) were observed drifting downstream usually south of Mile four. A few sections of blue-green algae, some about one foot wide, occasionally were observed in the Mile two-three area. They appeared to be growing on a thin layer of gelatinous material. The water in the area was almost anaerobic.

Dissolved Oxygen.
Lewiston Canal.

This summer there were tendays when the Dissolved Oxygen was recorded as 'zero', and forty-six days below 0.5 ppm. (During the 1970 season there were no zero Dissolved Oxygen tests and only fifteen days when the oxygen content of the water in the Canal was below 0.5 ppm). Without the aerators at Gulf Island Dam, it is quite probable that many more days would have been recorded as 'zero' dissolved oxygen.

The record of this and the six previous years are listed below.

Lewiston		
	Below ONE ppm	Below 0.5 ppm
1971	67 days	46 days
1970	30 "	15 "
1969	14 "	5 "
1968	44 "	31 "
1967	35 "	12 "
1966	26 "	13 "
1965	0 "	0 "

Fish-Kills.

The major kill of the season is described in Part Two of this report, cf pH section.

Three minor kills in the Androscoggin Pool refer to Part Three.

Press Reports.

Nation-wide public interest in the environment resulted in a large amount of space devoted to this subject in the local press. Editorial comment, letters to the editor, relating to local pollution were much more critical than in recent years. The Lewiston Sun-Journal staff made several inquiries about the oxygen and odor "levels" in Androscoggin River water and in Lake Auburn water. They have been curious about foam, its origin and on one occasion, wrote an editorial (Journal, July 12), very critical of the odor conditions and their origin etc. (cf page 62 Press Reports).

Table #5
LEWISTON (CANAL) 1971

River Statistics*

Date	Water Temp °C	pH	Dissolved Oxygen ppm	Oxygen % Sat.	B.O.D. 5 day ppm	River Flow G.I.D.
May 6	5.5	6.3	13.3	105.1	3.1	26060
13	10.6	6.6	11.1	99.3	1.7	16900
20	12.2	6.6	10.0	92.9	2.0	8270
27	14.1	6.7	7.3	70.3	2.3	7140
June 3	14.9	6.7	6.2	60.7	3.3	4330
10	18.9	6.5	4.6	48.9	3.0	5000
17	20.2	6.4	2.4	26.2	3.2	3020
24	22.0	6.5	1.1	12.5	4.6	2870
July 1	23.2	6.4	0.2	2.3	6.8	2260
8	23.4	6.4	0.0	0.0	4.6	2080
15	23.5	6.4	0.1	1.2	3.6	2020
22	23.0	6.5	0.3	3.4	3.7	2160
29	23.4	6.5	0.7	8.1	3.8	2160
Aug. 5	23.6	6.5	0.6	7.0	3.9	3250
12	23.2	6.4	0.3	3.5	3.9	2030
19	23.2	6.5	0.3	3.5	2.7	1800
26	22.0	6.5	0.7	8.0	2.3	1840
Sept. 2	20.3	6.6	1.0	11.1	2.4	2110
9	21.0	6.4	0.7	7.8	2.1	2110
16	20.5	6.5	1.5	16.5	2.0	3280
23	19.1	6.6	1.3	13.9	1.7	2240
30	17.1	6.6	1.8	18.6	2.3	1970

*Thursday data only

Cross Checks.
Deer Rips Dam.

Every two weeks from July eight to September sixteen, cross check tests and analyses were made on water sampled simultaneously at Deer Rips Dam by analysts from Oxford Paper Company and the Lewiston group. Examination of their results indicate good agreement in all of the tests, with the exception of the biochemical oxygen demands, Oxford's B.O.D.5 results are without exception usually slightly lower than those of the Lewiston group. As recorded earlier in this report the differences in this and the other two sets of cross checks should receive careful attention and study by the Technical Committee. A mercury thermometer was used by the Lewiston analysts, a bimetallic thermometer occasionally was employed by the Oxford Paper Company's chemist. A summary of the results are tabulated below.

CROSS CHECK

DEER RIPS DAM

Date		Temp. °C	pH	Dissolved Oxygen ppm	Oxygen % Sat.	B.O.D.5 ppm
July 8	Lewiston	23.7	6.4	0.0	0.0	7.0
	Oxford	23.7	6.4	0.0	0.0	4.8
July 22	Lewiston	23.2	6.4	0.1	1.2	5.3
	Oxford	23.0	6.5	0.0	0.0	3.9*
Aug. 5	Lewiston	24.0	6.6	0.2		3.5
	Oxford	23.8	6.5	0.2		3.2
Aug. 19	Lewiston	23.2	6.5	0.1	1.0	3.7
	Oxford	23.2	6.5	0.0	0.0	3.5
Sept. 2	Lewiston	20.5	6.5	0.5	4.9	2.7
	Oxford	20.3	6.7	0.3	3.3	2.4
Sept. 16	Lewiston	21.0	6.5	0.6	6.2	2.2
	Oxford	20.5	6.6	0.6	6.6	1.8*

*Did not obtain 2.0 ppm depletion

LEWISTON

May, June, 1971

Date	TEMP. C	pH	D.O. ppm	D.O. % Sat.	B.O.D. ppm
May 6	5.5	6.3	13.3	105.1	3.1
13	10.6	6.6	11.1	99.3	1.7
20	12.2	6.6	10.0	92.9	2.0
27	14.1	6.7	7.3	70.3	2.3
31	14.5	6.4	7.6	74.8	
June 1	15.0	6.4	7.0	68.9	
2	15.0	6.4	6.6	64.9	
3	14.9	6.7	6.2	60.7	3.3
4	16.2	6.5	6.0	60.0	
5	17.0	6.4	5.9	61.1	
7	17.6	6.4	5.3	54.7	
8	18.0	6.4	4.8	50.4	
9	18.3	6.4	4.4	46.7	
10	18.9	6.5	4.6	48.9	3.0
11	19.2	6.3	3.6	38.8	
12	20.0	6.3	3.4	36.8	
14	20.0	6.4	2.8	30.6	
15	20.0	6.4	2.9	31.1	
16	20.0	6.3	2.2	23.8	
17	20.2	6.4	2.4	26.2	3.2
18	20.7	6.3	2.0	22.0	
19	21.0	6.3	1.6	17.6	
21	22.1	6.4	1.2	13.5	
22	22.0	6.3	1.2	13.5	
23	22.8	6.4	1.1	12.4	
24	22.0	6.5	1.1	12.5	4.6
25	23.1	6.3	0.4	4.4	
26	23.0	6.3	0.36	4.1	
28	23.2	6.3	0.09	1.1	
29	23.2	6.3	0.0	0.0	
30	23.8	6.2	0.0	0.0	

LEWISTON
July, 1971

Date	TEMP. C	pH	D.O. ppm	D.O. % Sat.	B.O.D. ppm
1	23.2	6.4	0.2	2.3	6.8
2	23.5	6.3	0.0	0.0	
3	23.0	6.3	0.0	0.0	
5	24.0	6.3	0.0	0.0	
6	23.5	6.4	0.0	0.0	
7	24.0	6.4	0.0	0.0	
8	23.4	6.4	0.0	0.0	4.6
9	No sample road block (Canal Empty)				
10	24.2	6.4	0.0	0.0	
12	23.5	6.4	0.12	1.4	
13	24.0	6.4	0.58	6.8	
14	23.5	6.4	0.41	4.8	
15	23.5	6.4	0.1	1.2	3.6
16	24.5	6.3	0.2	2.3	
17	23.5	6.4	0.03	0.3	
19	23.5	6.4	0.06	0.7	
20	23.0	6.4	0.4	4.7	
21	23.2	6.4	0.6	7.0	
22	23.0	6.5	0.3	3.4	3.7
23	23.5	6.4	0.2	1.9	
24	23.5	6.4	0.2	1.9	
26	23.1	6.4	0.1	1.2	
27	23.8	6.5	0.3	2.9	
28	23.5	6.5	0.4	4.1	
29	23.4	6.5	0.7	8.1	3.8
30	24.3	6.4	0.4	4.7	
31	24.1	6.5	0.2	2.4	

LEWISTON
August, 1971

Date	Temp.	pH	D.O. ppm	D.O. % Sat.	B.O.D. ppm
2	24.5	6.4	0.3	3.0	
3	24.2	6.4	0.2	2.1	
4	24.0	6.4	0.2	2.1	
5	23.6	6.5	0.6	7.0	3.9
6	23.9	6.4	0.3	3.2	
7	23.5	6.4	0.2	1.7	
9	24.0	6.4	0.0	0.0	
10	24.0	6.3	0.2	1.9	
11	24.0	6.3	0.2	2.6	
12	23.2	6.4	0.3	3.5	3.9
13	23.5	6.5	0.1	1.4	
14	23.8	6.5	0.1	1.1	
16	22.5	6.4	0.7	8.1	
17	23.5	6.4	0.9	10.6	
18	23.9	6.4	0.5	5.7	
19	23.2	6.5	0.3	3.5	2.7
20	23.5	6.4	0.2	1.7	
21	24.0	6.4	0.2	1.8	
23	24.0	6.4	0.2	1.8	
24	22.0	6.4	0.2	1.8	
25	21.9	6.5	0.5	5.2	
26	22.0	6.5	0.7	8.0	2.3
27	22.2	6.4	0.2	2.0	
28	21.9	6.5	0.6	6.3	
30	22.0	6.5	0.7	7.4	
31	21.0	6.4	0.3	3.7	

LEWISTON

September, 1971

Date	Temp.	pH	D.O. ppm	D.O. % Sat.	B.O.D. ppm
1	20.8	6.4	0.6	6.1	
2	20.3	6.6	1.0	11.1	2.4
3	20.5	6.4	1.1	11.7	
4	20.5	6.4	1.2	13.3	
6	21.2	6.5	4.2	46.9	
7	20.8	6.4	0.7	8.1	
8	20.7	6.3	1.2	13.3	
9	21.0	6.4	0.7	7.8	2.1
10	21.0	6.4	1.0	9.2	
11	21.0	6.4	0.9	9.4	
13	21.0	6.5	0.8	8.6	
14	21.0	6.5	2.0	22.2	
15	21.0	6.4	1.6	18.3	
16	20.5	6.5	1.5	16.5	2.0
17	21.0	6.4	1.1	12.1	
18	20.0	6.3	1.0	11.3	
20	20.0	6.5	1.4	15.7	
21	20.5	6.5	1.1	11.6	
22	20.0	6.5	1.3	13.8	
23	19.1	6.6	1.3	13.9	1.7
24	19.7	6.5	1.7	17.7	
25	18.1	6.4	2.0	21.3	
30	17.1	6.6	1.8	18.6	2.3

ANDROSCOGGIN RIVER FLOW

C. F. S.

May, 1971

Date	BERLIN	RUMFORD	LIVERMORE FALLS	GULF ISLAND DAM
1	5371	12520	13550	14710
2	5362	12450	13790	14880
3	6283	16270	14160	15620
4	8542	27110	23790	30190
5	8288	21550	30670	33710
6	7568	16460	24070	26060
7	7525	15550	19220	21570
8	7020	15220	17740	19600
9	7559	14530	16730	18020
10	7468	14560	15940	17140
11	7281	15310	15760	16790
12	7687	15450	16190	16940
13	7468	15850	16230	16900
14	6150	13400	16410	16880
15	4208	9750	13770	14090
16	2748	7310	10480	11100
17	2782	6000	8460	9440
18	2626	6190	7350	8510
19	2590	6200	7440	8500
20	2529	6040	7320	8270
21	2570	5360	7070	7940
22	2646	5280	6350	7200
23	2506	5080	6280	7130
24	2428	3910	5860	6530
25	2677	3310	4780	5530
26	3593	4950	4360	5260
27	4090	5500	6130	7140
28	3721	5180	6520	7380
29	3752	4860	6230	7130
30	3325	4580	5710	6430
31	2712	4020	5330	5960
Monthly Average	4873	10315	12055	13308

ANDROSCOGGIN RIVER FLOW

C. F. S.

June, 1971

Date	BERLIN	RUMFORD	LIVERMORE FALLS	GULF ISLAND DAM
1	2607	3510	4620	5140
2	2494	3350	4110	4620
3	2573	3330	3880	4330
4	2436	3270	3800	4200
5	2388	3120	3710	4090
6	2567	2980	3480	3780
7	2727	3060	3400	3760
8	2767	3650	3500	3910
9	2409	4020	4390	5030
10	2465	3220	4550	5000
11	2478	3130	3640	3990
12	2459	2840	3460	3740
13	2433	2750	3200	3500
14	2503	2710	3040	3280
15	2367	2650	3000	3240
16	2251	2540	2900	3120
17	2183	2490	2800	3020
18	2303	2350	2640	2770
19	2126	2440	2590	2790
20	2177	2290	2620	2780
21	2478	2440	2540	2750
22	2354	2540	2630	2800
23	2219	2440	2770	2970
24	2200	2380	2670	2870
25	2259	2360	2560	2710
26	1946	2500	2640	2880
27	1680	2220	2830	3120
28	1760	1940	2470	2690
29	1905	2000	2120	2280
30	1889	2000	2160	2300
Monthly Average	2313	2751	3158	3449

ANDROSCOGGIN RIVER FLOW

C. F. S.

July, 1971

Date	BERLIN	RUMFORD	LIVERMORE FALLS	GULF ISLAND DAM
1	2894	2430	2140	2260
2	2482	4020	2580	2700
3	2040	2560	4110	4180
4	1932	2260	2860	3110
5	1796	2020	2380	2480
6	1845	1870	2170	2290
7	1729	1930	1990	2100
8	1786	1940	2010	2080
9	1838	2040	2030	2110
10	1704	1980	2150	2240
11	1717	1830	2000	2020
12	1808	1900	1910	1970
13	1814	1950	1910	1920
14	1952	1950	2050	2140
15	1802	2010	1990	2020
16	1794	1950	2030	2050
17	1801	2050	2130	2280
18	1771	2000	2100	2140
19	1860	2100	2160	2290
20	1839	2340	2220	2320
21	1766	2140	2440	2520
22	1791	1980	2150	2160
23	1813	1980	1940	1900
24	1817	2080	2070	2140
25	1781	2450	2160	2220
26	1778	2160	2500	2550
27	1756	2060	2270	2360
28	1753	2020	2100	2130
29	1849	1980	2100	2160
30	1836	2170	2020	2060
31	1776	2100	2470	2720
Monthly Average	1869	2137	2230	2310

ANDROSCOGGIN RIVER FLOW

C. F. S.

August, 1971

Date	BERLIN	RUMFORD	LIVERMORE FALLS	GULF ISLAND DAM
1	1778	2040	2450	2740
2	1858	2120	2280	2490
3	1958	2250	2480	2780
4	2031	2660	2600	2900
5	1767	2340	2980	3250
6	1768	2140	2500	2630
7	1696	2220	2340	2510
8	1653	2030	2160	2280
9	1739	1950	2110	2170
10	1787	1940	1970	1990
11	1874	1950	1920	1910
12	1745	2010	1990	2030
13	1766	1970	1960	1910
14	1663	1910	2060	2130
15	1730	1780	1940	1970
16	1863	1870	1770	1760
17	1876	2000	1800	1740
18	1951	1950	1910	1840
19	1820	1990	1870	1800
20	1818	1920	2000	2010
21	1732	1930	1960	2000
22	1746	1850	1880	1840
23	1849	1930	1810	1770
24	1712	2040	1880	1830
25	1720	1900	2030	2020
26	1710	1860	1870	1840
27	1798	1930	1830	1920
28	1994	2540	2050	2160
29	1912	3280	2960	3320
30	1767	2400	3590	3860
31	1759	2090	2610	2790
monthly average	1801	2084	2181	2264

ANDROSCOGGIN RIVER FLOW

C. F. S.

September, 1971

Date	BERLIN	RUMFORD	LIVERMORE FALLS	GULF ISLAND DAM
1	1754	2070	2210	2310
2	1784	2010	2090	2110
3	1804	2050	2040	2070
4	1762	2020	2170	2280
5	1753	1920	2150	2270
6	1735	1950	1970	2010
7	1807	1980	2050	2140
8	1771	2120	2070	2150
9	1764	1930	2110	2110
10	1783	1920	1950	1970
11	1801	1910	1970	2020
12	1851	2050	2100	2270
13	1835	2250	2150	2240
14	1987	2450	2450	2620
15	2046	3050	2680	2870
16	1893	2470	3170	3280
17	1877	2200	2690	2880
18	1723	2190	2400	2570
19	1610	2000	2320	2430
20	1761	1930	2070	2130
21	1791	2100	1980	2030
22	1770	2210	2150	2190
23	1794	2090	2230	2240
24	1774	2100	2070	2060
25	1796	2040	2170	2230
26	1780	2040	2090	2140
27	1809	2010	2050	2060
28	1811	2030	2030	2040
29	1840	2020	2000	1980
30	1761	2040	1990	1970
Monthly Average	1801	2105	2186	2250

ANDROSCOGGIN RIVER
Monthly Daily Averages
BERLIN, NEW HAMPSHIRE
1965 - 1970*

Year	1965	1966	1967
January	1797	1831	1814
February	1714	1825	1785
March	1706	2063	1611
April	1773	2721	2397
May	1895	3116	3428
June	1596	2490	1844
July	1554	2012	1877
August	1505	1867	1917
September	1533	1917	1913
October	1687	1891	1954
November	1860	1796	1912
December	1821	1821	1864
TOTAL	20441	25350	24316
Year Aver.	1703	2113	2026

Year	1968	1969	1970
January	1805	1566	3982
February	1721	1602	3328
March	2213	1835	2771
April	3955	5066	4504
May	1866	9143	5823
June	3032	3088	2362
July	2450	2219	1877
August	2025	2566	1836
September	1919	2327	1822
October	1850	2374	1939
November	1653	3006	2033
December	1595	3124	1900
TOTAL	26084	37916	34177
Year Aver.	2174	3161	2848

*For years 1927 to 1964 inclusive are recorded
in 1965 Annual Report

ANDROSCOGGIN RIVER
Monthly Daily Averages

RUMFORD, MAINE

1965 - 1970*

Year	1965	1966	1967
January	2165	2188	2187
February	2067	2146	1984
March	2327	4012	2004
April	3407	5929	5036
May	3201	5880	6996
June	2089	3577	3034
July	1722	2250	2399
August	1637	2018	2246
September	1773	2118	2314
October	2240	2262	2877
November	2524	4105	2659
December	2095	2457	2650
TOTAL	27247	38942	36386
Year Aver.	2271	3245	3032

Year	1968	1969	1970
January	2201	2125	5023
February	2260	2085	4655
March	4609	2437	3268
April	9438	12561	9390
May	3388	16641	9441
June	5301	4186	2781
July	3250	3827	2116
August	2274	3694	1997
September	2170	2564	1987
October	2039	2457	2860
November	2238	6661	2982
December	2357	5496	2317
TOTAL	41525	64734	48817
Year Aver.	3460	5391	4150

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in 1965 Annual Report

ANDROSCOGGIN RIVER
Monthly Daily Averages

LIVERMORE FALLS, MAINE

1965 - 1970*

Year	1965	1966	1967
January	2478	2455	2463
February	2391	2482	2201
March	3155	5145	2245
April	4486	7872	7022
May	3994	7058	8475
June	2342	4170	3894
July	1783	2343	2692
August	1703	2092	2398
September	1887	2173	2300
October	2495	2539	3297
November	3030	5425	3027
December	2380	3081	3039

TOTAL	32124	46835	43053
Year Aver.	2677	3875	3588

Year	1968	1969	1970
January	2467	2485	6051
February	2678	2415	7586
March	5495	2944	4187
April	11391	15195	10940
May	4435	18296	10982
June	5894	5228	3115
July	3811	3800	2271
August	2321	4501	2018
September 6	2205	2838	2049
October	2124	2624	3283
November	2446	8218	3341
December	3166	7397	2566

TOTAL	48433	75941	58389
Year Aver.	4036	6328	4866

*For years 1927 to 1964 inclusive are recorded
in 1965 Annual Report

ANDROSCOGGIN RIVER
Monthly Daily Averages

GULF ISLAND DAM

1965 - 1970*

Year	1965	1966	1967
January	2725	2676	2695
February	2675	2768	2389
March	3860	6166	2474
April	5476	9534	8797
May	4600	8025	9684
June	2552	4664	4590
July	1832	2415	2942
August	1747	2146	2525
September	1990	2228	2377
October	2724	2775	3581
November	3457	6604	3320
December	2628	3557	3380
TOTAL	36266	53558	48754
Year Aver.	3245	4463	4063

Year	1968	1969	1970
January	2694	2796	6782
February	3029	2690	9453
March	6500	3389	4961
April	12858	18001	12789
May	5302	19297	11775
June	6527	5974	3378
July	4111	4102	2392
August	2360	4957	2034
September	2221	3065	2110
October	2199	2764	3648
November	2704	9568	3654
December	3786	9168	2770
TOTAL	54291	85771	65746
Year Aver.	4524	7064	5479

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in 1965 Annual Report